

REPORT ON OIL ENGINE MACHINERY.

No. 5384

3 DEC 1934

Received at London Office

Date of writing Report 29th October 1934 when handed in at Local Office

29/10/1934 Port of Yokohama

Survey held at Yokohama & Uraga

Date, First Survey 11th April 1933

Last Survey 24th October 1934

Number of Visits 193

74 on the ^{Single} Twin ^{Triple} Quadruple Screw vessel

MV "NAKO MARU"

Tons } Gross 7139
Net 4272.5

built at Uraga By whom built Uraga Dock Co Ltd Yard No. 388 When built 1934-10

engines made at Yokohama By whom made Yokohama Dock Co Ltd Engine No. 4703 When made 1934

boiler Boilers made at Uraga By whom made Uraga Dock Co Ltd Boiler No. - When made 1934

brake Horse Power 6700 Owners Nippon Yusen K. K. Port belonging to Tokyo

nom. Horse Power as per Rule 1857 Is Refrigerating Machinery fitted for cargo purposes Yes. Is Electric Light fitted Yes.

trade for which vessel is intended all seas.

ENGINES, &c.—Type of Engines M.A.N. Airless Injection 2 or 4 stroke cycle 2 Single or double acting double

maximum pressure in cylinders 45 kg/cm² Diameter of cylinders 700 mm Length of stroke 1200 mm No. of cylinders 7 No. of cranks 7

mean of bearings, adjacent to the Crank, measured from inner edge to inner edge 1090 Is there a bearing between each crank Yes

revolutions per minute 105 Flywheel dia. 2300 mm Weight 8670 kg Means of ignition Airless Kind of fuel used Heavy Oil

Crank Shaft, dia. of journals as per Rule app^d to 500 mm Crank pin dia. 500 mm Crank Webs Mid. length breadth 790 mm Kind of fuel used Heavy Oil Thickness parallel to axis 320 mm

as fitted 500 mm Mid. length thickness 320 mm shrunk Thickness around eyehole 222.5 mm

Flywheel Shaft, diameter as per Rule app^d to 500 mm Intermediate Shafts, diameter as per Rule app^d to 430 mm Thrust Shaft, diameter at collars as per Rule app^d to 455 mm

as fitted 500 mm Is the tube screw shaft fitted with a continuous liner Yes

Screw Shaft, diameter as per Rule app^d to 470 mm as fitted 470 mm Is the after end of the liner made watertight in the

as fitted 470 mm as fitted 25 mm Thickness between bushes as per rule app^d to 25 mm as fitted 25 mm

propeller boss Yes If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner

If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive

If two liners are fitted, is the shaft lapped or protected between the liners Is an approved Oil Gland or other appliance fitted at the after end of the tube

shaft If so, state type Length of Bearing in Stern Bush next to and supporting propeller 2080 mm

Propeller, dia. 5486 mm Pitch 5170 mm No. of blades 4 Material Bronze whether Moveable No. Total Developed Surface 9.28 sq. METRES

Method of reversing Engines direct. Air Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes Means of lubrication forced

Thickness of cylinder liners 45 mm Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled or lagged with non-conducting material lagged

If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine

Cooling Water Pumps, No. Two Rotary Is the sea suction provided with an efficient strainer which can be cleared within the vessel Yes

Bilge Pumps worked from the Main Engines, No. - Diameter - Stroke - Can one be overhauled while the other is at work -

Pumps connected to the Main Bilge Line { No. and Size 1-1x125 Z x 150 Z = 15 T/hr, 1-2 x 210 x 210 Z = 100 T/hr (Cargo oil pp.) 1-110 T/hr Rotary (Ballast pp.)

How driven electric Motors

Ballast Pumps, No. and size 1-110 T/hr Rotary Lubricating Oil Pumps, including Spare Pump, No. and size 2 x 65 T/hr Rotary

Are two independent means arranged for circulating water through the Oil Cooler Yes Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size:—In Machinery Spaces 3-90 mm 2-50 mm Tunnel Well 1-75 mm In Pump Room

In Holds, &c. N=1, 2, 3 & 5 Holds 2-90 mm each; N=6 Hold 1-90 mm; A, B, C & D Deep Tanks 1-65 mm each.

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1-140 Z, 1-200 Z

Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Yes Are the Bilge Suctions in the Machinery Spaces led from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges Yes

Are all Sea Connections fitted direct on the skin of the ship Yes Are they fitted with Valves or Cocks Yes

Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates Yes Are the Overboard Discharges above or below the deep water line above

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Yes Are the Blow Off Cocks fitted with a spigot and brass covering plate Yes

What pipes pass through the bunkers How are they protected

What pipes pass through the deep tanks Have they been tested as per Rule

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes

Is the arrangement of valves and their connections such as to prevent the possibility of water passing from the sea or from water tanks into the cargo or machinery spaces, or from one compartment to another Yes Is the Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from engine room top grating

If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork

Main Air Compressors, No. Nil No. of stages - Diameters - Stroke - Driven by -

Auxiliary Air Compressors, No. 2 No. of stages 3 Diameters M.P. 105 mm M.P. 360-305 Z Stroke 250 mm Driven by Aux. Diesel engine

Small Auxiliary Air Compressors, No. 1 No. of stages 2 Diameters H.P. 45 L.P. 95 Stroke 95 Driven by Hand

Scavenging Air Pumps, No. One Diameter - Stroke - Driven by electric motor

Auxiliary Engines crank shafts, diameter as per Rule 166.5 mm as fitted 170 mm

AIR RECEIVERS:—Is each receiver, which can be isolated, fitted with a safety valve as per Rule Yes

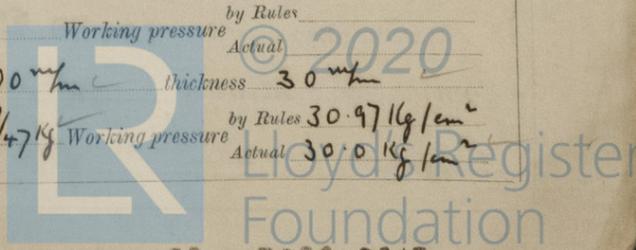
Can the internal surfaces of the receivers be examined and cleaned Yes Is a drain fitted at the lowest part of each receiver Yes

High Pressure Air Receivers, No. - Cubic capacity of each - Internal diameter - thickness -

Seamless, lap welded or riveted longitudinal joint Material Range of tensile strength Working pressure by Rules Actual

Starting Air Receivers, No. 2 Total cubic capacity 1059 cub. ft Internal diameter 1800 mm thickness 30 mm

Seamless, lap welded or riveted longitudinal joint T.R. D.B.S. Material Steel Range of tensile strength 44/55 41/47 kg Working pressure by Rules 30.97 kg/cm² Actual 30.0 kg/cm²



IS A DONKEY BOILER FITTED?

Is the donkey boiler intended to be used for domestic purposes only Yes. If so, is a report now forwarded? Yes

PLANS. Are approved plans forwarded herewith for Shafting 22/2/33, 20/3/33 Receivers 17/1/34
 (If not, state date of approval) Donkey Boilers 24/5/33 General Pumping Arrangements 30/4/34, 22/8/33 Oil Fuel Burning Arrangements 22/8/33
 Separate Tanks 11/7/33, 13/10/33, 19/10/33, 22/11/33

SPARE GEAR.

Has the spare gear required by the Rules been supplied Yes. See separate list

State the principal additional spare gear supplied

Spare Screw Shaft marked

U.T.L.6
 LLOYD'S
 No 985
 G.H.M. 4/10/34

The foregoing is a correct description,

S. Tenuematus Manufacturer for U.D.C.

Dates of Survey while building
 During progress of work in shops - 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
 During erection on board vessel - 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
 Total No. of visits 193

Dates of Examination of principal parts - Cylinders 18/9/33 to 12/4/34 Covers 11/1/34 to 19/6/34 Pistons 11/4/33 to 2/8/34 Rods 1/3/34 to 30/7/34 Connecting rods 10/5/34
 Crank shaft 12/4/34 Flywheel shaft 12/4/34 Thrust shaft 16/8/34 Intermediate shafts 12/2/34 to 12/2/34 Tube shaft 10/5/34
 Screw shaft 21/5/34 to 4/10/34 Propeller 11/2/34 to 23/6/34 Stern tube 14/2/34 to 31/5/34 Engine seatings 2/8/34 Engines holding down bolts 7/11/34 to 29/8/34

Completion of fitting sea connections 22/6/1934 Completion of pumping arrangements 4/10/1934 Engines tried under working conditions 13/10/1934
 Crank shaft, Material Steel Identification Mark LLOYD'S NO 887A Flywheel shaft, Material Steel Identification Mark LLOYD'S NO 887
 Thrust shaft, Material Steel Identification Mark LLOYD'S NO 888 Intermediate shafts, Material Steel Identification Marks LLOYD'S NO 889
 Tube shaft, Material Steel Identification Mark LLOYD'S NO 890 Screw shaft, Material Steel Identification Mark LLOYD'S NO 891

Is the flash point of the oil to be used over 150° F. Yes.

Have the requirements of the Rules for oil fuel pipes and tank fittings been complied with Yes.

Is the vessel (not being an oil tanker) fitted for carrying oil as cargo Yes.

If so, have the requirements of the Rules been complied with Yes.

If the notation for Ice Strengthening is desired, state whether the requirements in this respect have been complied with No.

Is this machinery duplicate of a previous case Yes. If so, state name of vessel 'NAGARA MARU'

General Remarks (State quality of workmanship, opinions as to class, &c.) The machinery of this vessel has been built and fitted on board the vessel under Special Survey in accordance with the Rules and approved plans, material and workmanship good. The machinery was examined running on Shop trials and afterwards under full working conditions on board, with satisfactory results. The machinery of this vessel is eligible in my opinion to have the record of +L.M.C. 10.34 in the Register Book.

Certificate (if required) to be sent to the Registrar of Shipping, London, or to the Registrar of Shipping, the place for Committee's Minute.

T.R.F.B. 9/11 Air receivers 13-2-6
 The amount of Entry Fee .. £ 6-0-0
 Special £ 183-0-0
 Donkey Boiler Fee £ 5-5-0
 Travelling Expenses (if any) Yen 110:50

When applied for, 5-11-1934
 When received, 5-1-1935

S. H. Macdonald
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 7 DEC 1934
 Assigned see J. E. Machy



Has the Steel been tested as required by the Rules? Yes